

What is claimed is:

1. A method of strengthening the near well bore region of a subterranean formation comprising the steps of:
 - (a) isolating a zone of interest along a well bore;
 - (b) hydrajetting at least one slot in the zone of interest;
 - (c) filling the slot with a consolidation material wherein the viscosity of the consolidation material is sufficient to enable the consolidation material to penetrate a distance into the formation; and,
 - (d) allowing the consolidation material to substantially cure.
2. The method of claim 1 wherein the consolidation material comprises a resin.
3. The method of claim 2 wherein the resin consolidation material comprises a hardenable resin component comprising a hardenable resin and a hardening agent component comprising a liquid hardening agent, a silane coupling agent, and a surfactant.
4. The method of claim 3 wherein the hardenable resin in the liquid hardenable resin component is an organic resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolak resin, polyester resin, phenol-aldehyde resin, urea-aldehyde resin, furan resin, urethane resin, glycidyl ethers, or mixtures thereof.
5. The method of claim 3 wherein the liquid hardening agent in the liquid hardening agent component comprises amines, aromatic amines, aliphatic amines, cyclo-aliphatic amines, piperidine, triethylamine, benzyldimethylamine, N,N-dimethylaminopyridine, 2-(N₂N-dimethylaminomethyl)phenol, tris(dimethylaminomethyl)phenol, or mixtures thereof.
6. The method of claim 3 wherein the silane coupling agent in the liquid hardening agent component comprises N-2-(aminoethyl)-3-aminopropyltrimethoxysilane, 3-glycidoxypropyltrimethoxysilane, n-beta- (aminoethyl)-gamma-aminopropyl trimethoxysilane or mixtures thereof.
7. The method of claim 3 wherein the surfactant in the liquid hardening agent component comprises ethoxylated nonyl phenol phosphate ester, mixtures of one or more cationic surfactants, a C₁₂ – C₂₂ alkyl phosphonate surfactant, one or more non-ionic surfactants and an alkyl phosphonate surfactant, or mixtures thereof.

8. The method of claim 3 wherein the resin consolidation material is a furan-based resin comprising furfuryl alcohol, a mixture furfuryl alcohol with an aldehyde, a mixture of furan resin and phenolic resin or mixtures thereof.

9. The method of claim 3 further comprising a solvent comprising 2-butoxy ethanol, butyl acetate, furfuryl acetate, or mixtures thereof.

10. The method of claim 2 wherein the resin consolidation material is a phenolic-based resin comprising terpolymer of phenol, phenolic formaldehyde resin, a mixture of phenolic and furan resin, or mixtures thereof.

11. The method of claim 10 further comprising a solvent comprising butyl acetate, butyl lactate, furfuryl acetate, 2-butoxy ethanol, or mixtures thereof.

12. The method of claim 2 wherein the resin consolidation material is a HT epoxy-based resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolac resin, polyester resin, glycidyl ethers, or mixtures thereof.

13. The method of claim 12 further comprising a solvent comprising dimethyl sulfoxide, dimethyl formamide, dipropylene glycol methyl ether, dipropylene glycol dimethyl ether, dimethyl formamide, diethylene glycol methyl ether, ethylene glycol butyl ether, diethylene glycol butyl ether, propylene carbonate, d'limonene, fatty acid methyl esters, or mixtures thereof.

14. The method of claim 1 further comprising, after step (d), the step of:

(e) hydraulically fracturing the zone of interest.

15. A method of strengthening the near well bore region of a subterranean formation comprising the steps of:

- (a) isolating a zone of interest along a well bore;
- (b) acidizing the zone of interest with an acid to create a plurality of wormholes;
- (c) filling the wormholes with a consolidation material wherein the viscosity of the consolidation material is sufficient to enable the consolidation material to penetrate a distance into the formation; and,
- (d) allowing the consolidation material to substantially cure.

16. The method of claim 15 wherein the acid is hydrochloric acid, hydrofluoric acid, acetic acid, formic acid, citric acid, EDTA, or combinations thereof.

17. The method of claim 15 wherein the consolidation material comprises a resin.

18. The method of claim 17 wherein the resin consolidation material comprises a hardenable resin component comprising a hardenable resin and a hardening agent component comprising a liquid hardening agent, a silane coupling agent, and a surfactant.

19. The method of claim 18 wherein the hardenable resin in the liquid hardenable resin component is an organic resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolak resin, polyester resin, phenol-aldehyde resin, urea-aldehyde resin, furan resin, urethane resin, glycidyl ethers, or mixtures thereof.

20. The method of claim 18 wherein the liquid hardening agent in the liquid hardening agent component comprises amines, aromatic amines, aliphatic amines, cycloaliphatic amines, piperidine, triethylamine, benzyldimethylamine, N,N-dimethylaminopyridine, 2-(N₂N-dimethylaminomethyl)phenol, tris(dimethylaminomethyl)phenol, or mixtures thereof.

21. The method of claim 18 wherein the silane coupling agent in the liquid hardening agent component comprises N-2-(aminoethyl)-3-aminopropyltrimethoxysilane, 3-glycidoxypropyltrimethoxysilane, n-beta- (aminoethyl)-gamma-aminopropyl trimethoxysilane or mixtures thereof.

22. The method of claim 18 wherein the surfactant in the liquid hardening agent component comprises ethoxylated nonyl phenol phosphate ester, mixtures of one or more

cationic surfactants, a C₁₂ – C₂₂ alkyl phosphonate surfactant, one or more non-ionic surfactants and an alkyl phosphonate surfactant, or mixtures thereof.

23. The method of claim 17 wherein the resin consolidation material is a furan-based resin comprising furfuryl alcohol, a mixture furfuryl alcohol with an aldehyde, a mixture of furan resin and phenolic resin or mixtures thereof.

24. The method of claim 23 further comprising a solvent comprising 2-butoxy ethanol, butyl acetate, furfuryl acetate, or mixtures thereof.

25. The method of claim 17 wherein the resin consolidation material is a phenolic-based resin comprising terpolymer of phenol, phenolic formaldehyde resin, a mixture of phenolic and furan resin, or mixtures thereof.

26. The method of claim 25 further comprising a solvent comprising butyl acetate, butyl lactate, furfuryl acetate, 2-butoxy ethanol, or mixtures thereof.

27. The method of claim 17 wherein the resin consolidation material is a HT epoxy-based resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolac resin, polyester resin, glycidyl ethers, or mixtures thereof.

28. The method of claim 27 further comprising a solvent comprising dimethyl sulfoxide, dimethyl formamide, dipropylene glycol methyl ether, dipropylene glycol dimethyl ether, dimethyl formamide, diethylene glycol methyl ether, ethylene glycol butyl ether, diethylene glycol butyl ether, propylene carbonate, d'limonene, fatty acid methyl esters, or mixtures thereof.

29. The method of claim 15 further comprising, after step (d), the step of:
(e) hydraulically fracturing the zone of interest.